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10/21/99

## Document Number 3

Entry 3 of 6        File: USPT        Mar 25, 1997

US-PAT-NO: 5615109
DOCUMENT-IDENTIFIER: US 5615109 A

TITLE: Method of and system for generating feasible, profit maximizing requisition sets
DATE-ISSUED: March 25, 1997

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|------|------|-------|----------|---------|
| Eder; Jeff | Bellevue | WA | 98007 | N/A |

APPL-NO: 8/ 448826
DATE FILED: May 24, 1995

INT-CL: [6] G06 F 15/00
US-CL-ISSUED: 395/208; 395/235
US-CL-CURRENT: 705/8; 705/35
FIELD-OF-SEARCH: 364/401, 364/403, 364/404, 364/408, 395/925

REF-CITED:

### U.S. PATENT DOCUMENTS

| PAT-NO | ISSUE-DATE | PATENTEE-NAME | US-CL |
|--------|------------|---------------|-------|
| 4989141 | January 1991 | Lyons et al. | 364/408 |
| 5128861 | July 1992 | Kagami | 364/403 |
| 5189608 | February 1993 | Lyons | 364/408 |
| 5224034 | June 1993 | Katz | 364/401 |
| 5237495 | August 1993 | Morii | 364/401 |
| 5237496 | August 1993 | Kagami | 364/401 |
| 5521813 | May 1996 | Fox et al. | 364/401 |

ART-UNIT: 236
PRIMARY-EXAMINER: Gordon; Paul P.
ASSISTANT-EXAMINER: Prass, Jr.; Ronald E.
ABSTRACT:

In a computer based inventory control method and system, feasible profit maximizing sets of requisitions are created. System processing starts with the creation of detailed, multi-dimensional forecasts of sales and cash receipts using stored algorithms and data preferentially extracted from a basic financial system and the adjustment of the forecasts to match the controlling forecast specified by the user. The adjustment of the forecasts is facilitated by the use of a calculated variable that defines the magnitude of the relative adjustment for each forecast element. All forecasts are adjusted to exactly match a controlling forecast which is either a multivalent combination of the previously generated forecasts or the user specified controlling forecast. The adjusted forecast of sales by

item is then used in calculating a requisition set that satisfies expected demand while meeting user specified service level targets. A profit maximized requisition set is then created that utilizes vendor and unit of measure substitution under a variety of discount schedules to the extent possible within the user specified constraints. The processing completed by the system to determine the profit maximizing requisition set utilizes multi-objective, mixed-integer, linear programming techniques. A financial forecast is then calculated and displayed to determine if purchasing the profit maximizing requisition set will be feasible under the forecast financial conditions. Once the constraints and/or forecasts are adjusted as required to produce a feasible solution, processing advances to the profit enhancement stage where overall financial constraints are established and user specified constraints on commitment percentages, global unit of measure substitution and global vendor substitution are optionally relaxed and profit enhancing changes are calculated, stored and displayed. The user optionally accepts displayed enhancements and the financial forecast is recalculated to demonstrate the impact of the accepted changes before the requisitions are modified to reflect the accepted enhancements.
10 Claims, 13 Drawing figures

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Document Number 2

US-PAT-NO: 5765143
DOCUMENT-IDENTIFIER: US 5765143 A

TITLE: Method and system for inventory management
DATE-ISSUED: June 9, 1998

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|------|------|-------|----------|---------|
| Sheldon; David E. | Danville | CA | N/A | N/A |
| Leach; James | San Ramon | CA | N/A | N/A |
| Pisarsky; Vladimir | Mountain View | CA | N/A | N/A |

ASSIGNEE INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY | TYPE CODE |
|------|------|-------|----------|---------|-----------|
| Triad Systems Corporation | Livermore | CA | N/A | N/A | 02 |

APPL-NO: 8/ 402025
DATE FILED: March 10, 1995
PARENT-CASE:
CROSS-REFERENCE TO PRIOR APPLICATION This is a continuation-in-part
application, whose parent is the U.S. patent application Ser. No. 08/396,453
now abandoned filed on Feb. 28, 1995, entitled "METHOD AND SYSTEM FOR
INVENTORY MANAGEMENT," which names four co-inventors (including the three
inventors named in the present application).

INT-CL: [6] G06 F 17/60
US-CL-ISSUED: 705/28; 705/10, 705/22
US-CL-CURRENT: 705/28; 705/10, 705/22
FIELD-OF-SEARCH: 364/41R, 364/402, 364/403, 395/210, 395/228, 705/10,
705/16, 705/22, 705/28

REF-CITED:

U.S. PATENT DOCUMENTS

| PAT-NO | ISSUE-DATE | PATENTEE-NAME | US-CL |
|--------|-----------|---------------|-------|
| 4972504 | November 1990 | Daniel, Jr. et al. | 455/2 |
| 5128861 | July 1992 | Kagami et al. | 705/10 |
| 5168445 | December 1992 | Kawashima et al. | 364/403 |
| 5406475 | April 1995 | Kouchi et al. | 395/208 |
| 5537313 | July 1996 | Pirelli | 395/228 |
| 5615109 | March 1997 | Eder | 705/8 |

ART-UNIT: 271
PRIMARY-EXAMINER: Voeltz; Emanuel T.
ASSISTANT-EXAMINER: Bainbridge; Barton L.

ATTY-AGENT-FIRM: Limbach & Limbach L.L.P.

ABSTRACT:

A computer system and computer-implemented method for controlling inventory of vendors at one level of a part distribution chain. The system includes a computer programmed with software for generating order data in response to reference data indicative of sales, inventory, demographics, and/or market characteristics of or pertaining to at least two vendors at the same distribution level. The order data is indicative of one or more of a recommended inventory increase transaction (such as a reorder by a vendor of a sold part); an inventory reduction transaction (such as a return of one or more parts in stock at the vendor); and a recommended stocking level of one or more parts by the vendor. When the computer is operated by personnel of a first vendor, it receives reference data concerning at least one other vendor at the same distribution level (in addition to processing reference data concerning the first vendor. When the computer is a host computer, it receives reference data from two or more vendors at the same distribution level. Preferably, the computer which generates the order data is programmed to generate the order data by processing forecast data which is generated by processing the reference data. To generate the forecast data, the computer preferably implements a point-of-sale based method or an actuarial method to determine a forecast of sales of a part by a vendor in a selected time period.
29 Claims, 3 Drawing figures

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## Document Number 5

US-PAT-NO: 5450317
DOCUMENT-IDENTIFIER: US 5450317 A

TITLE: Method and system for optimized logistics planning
DATE-ISSUED: September 12, 1995

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|---|---|---|---|---|
| Lu; Lu | Boulder | CO | N/A | N/A |
| Qiu; Yuping | Louisville | CO | N/A | N/A |
| Cox, Jr.; Louis A. | Denver | CO | N/A | N/A |

ASSIGNEE INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY | TYPE CODE |
|---|---|---|---|---|---|
| U S West Advanced Technologies, Inc. | Boulder | CO | N/A | N/A | 02 |

APPL-NO: 8/ 158128
DATE FILED: November 24, 1993

INT-CL: [6] G06 F 15/20, G06 G 7/418
US-CL-ISSUED: 364/402; 364/401
US-CL-CURRENT: 705/10; 705/28
FIELD-OF-SEARCH: 364/401, 364/402, 364/468, 364/403, 364/408

REF-CITED:

### U.S. PATENT DOCUMENTS

| PAT-NO | ISSUE-DATE | PATENTEE-NAME | US-CL |
|---|---|---|---|
| 4646238 | February 1987 | Carlson, Jr. et al. | 364/403 |
| 4887207 | December 1989 | Natarajan | 364/401 |
| 5068797 | November 1991 | Sansone et al. | 364/478 |
| 5072401 | December 1991 | Sansone et al. | 364/478 |
| 5101352 | March 1992 | Rembert | 364/401 |
| 5193065 | March 1993 | Guerindon et al. | 364/468 |
| 5216593 | June 1993 | Dietrich et al. | 364/402 |
| 5224034 | June 1993 | Katz et al. | 364/401 |

ART-UNIT: 231
PRIMARY-EXAMINER: Hayes; Gail O.
ASSISTANT-EXAMINER: Tkacs; Stephen R.
ATTY-AGENT-FIRM: Brooks and Kushman

ABSTRACT:

An improved <u>logistics</u> planning method and system for recommending optimal
order quantities and timing, choice of vendor locations and storage
locations, and transportation modes, for individual items and for product
families. The system is designed for use in cooperation with the computer
having memory and incorporates item, customer, supplier, and routing
information databases. In operation, the item, customer and supplier
databases are accessed in order to provide customer and warehouse demand
forecasts. The routing and customer databases are similarly accessed to
provide transportation cost forecasts necessary to determine optimized
routing modes for selected items, customers and suppliers. The demand and
transportation costs are processed in accordance with a dynamic programming
model to determine stock and non-stock order/shipment solutions for the
selected items and customers, including optimized supplier and routing
selection, order timing and quantity.
5 Claims, 5 Drawing figures

## Document Number 1

US-PAT-NO: 5953707
DOCUMENT-IDENTIFIER: US 5953707 A

TITLE: Decision support system for the management of an agile supply chain
DATE-ISSUED: September 14, 1999

INVENTOR-INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY |
|------|------|-------|----------|---------|
| Huang; Ying | Yorktown Heights | NY | N/A | N/A |
| Desiraju; Ramakrishna | North Tarrytown | NY | N/A | N/A |
| Begue; Christophe | White Plains | NY | N/A | N/A |
| Bakkalbasi; Omer | Mahopac | NY | N/A | N/A |
| Chan; Lap Mui Ann | Ossining | NY | N/A | N/A |
| Bhaskaran; Krishnakumar | Tarrytown | NY | N/A | N/A |
| Federgruen; Awi | Holliswood | NY | N/A | N/A |
| Krasinski; Raymond J. | Suffern | NY | N/A | N/A |
| Boey; Peter | Scarborough | NY | N/A | N/A |

ASSIGNEE INFORMATION:

| NAME | CITY | STATE | ZIP CODE | COUNTRY | TYPE CODE |
|------|------|-------|----------|---------|-----------|
| Philips Electronics North America Corporation | New York | NY | N/A | N/A | 02 |

APPL-NO: 8/ 802961
DATE FILED: February 21, 1997
PARENT-CASE:
This application depends from U.S. Provisional Patent Application No.
60/012,327 entitled, "Decision Support System for the Management of an Agile
Supply Chain", filed Feb. 27, 1996; U.S. Provisional Patent Application No.
60/022,787 entitled, "Decision Support System for the Management of an Agile
Supply Chain", filed Jul. 30, 1996; U.S. Provisional Patent Application No.
60/008,101, filed Oct. 30, 1995; and U.S. Provisional Patent Application No.
60/005,860 entitled, "Decision Support Systems", filed Oct. 26, 1995, all
filed on the behalf of the Assignee of this application.

INT-CL: [6] G06 F 17/60
US-CL-ISSUED: 705/10; 705/1, 705/7, 706/925
US-CL-CURRENT: 705/10; 705/1, 705/7, 706/925
FIELD-OF-SEARCH: 705/10, 705/7, 705/8, 705/1, 706/925, 706/926

REF-CITED:

U.S. PATENT DOCUMENTS

| PAT-NO | ISSUE-DATE | PATENTEE-NAME | US-CL |
|---|---|---|---|
| T998008 | September 1980 | DeLano, Jr. | 705/7 |
| 5208765 | May 1993 | Turnbull | N/A |
| 5216612 | June 1993 | Cornett et al. | 364/468.02 |
| 5231585 | July 1993 | Kobayashi et al. | 364/468.02 |
| 5237497 | August 1993 | Sitarski | 705/8 |
| 5249120 | September 1993 | Foley | 705/1 |
| 5278751 | January 1994 | Adiano et al. | 705/10 |
| 5311438 | May 1994 | Sellers et al. | 705/8 |
| 5321605 | June 1994 | Chapman et al. | 705/7 |
| 5325292 | June 1994 | Crockett | N/A |
| 5331545 | July 1994 | Yajima et al. | 705/8 |
| 5369570 | November 1994 | Parad | 705/8 |
| 5463555 | October 1995 | Ward et al. | 364/468.02 |
| 5586021 | December 1996 | Fargher et al. | 364/468.06 |
| 5712985 | January 1998 | Lee et al. | 705/10 |
| 5717865 | February 1998 | Stratmann | 705/10 |
| 5737727 | April 1998 | Lehmann et al. | 705/7 |
| 5765143 | June 1998 | Sheldon et al. | N/A |
| 5787283 | July 1998 | Chin et al. | 364/468.02 |

ART-UNIT: 275
PRIMARY-EXAMINER: MacDonald; Allen R.
ASSISTANT-EXAMINER: Crecca; Michele Stuckey
ATTY-AGENT-FIRM: Thorne; Gregory L.

ABSTRACT:

A decision support system for the management of an agile supply chain that
provides an architecture including a server side and a client side. The
server side includes a decision support system database that interfaces with
a model engine that performs analysis of the data to support planning
decisions. The server side includes a server manager that coordinates
requests for service and information. The client side includes decision
frames that present the various view points available in the system to the
users. A frame manager coordinates the requests from decision support frames
to access the needed data and models. The decision support frames provide a
view into the supply chain and integrate analytical models responsive to the
view point of a business process such as demand management. The frames
include a supply management frame, a demand management frame, a vendor
managed replenishment frame, a Planning, Sales and Inventory planning frame,
and a distribution network design frame. The frame manager includes a system
integrator and a functional integrator. A database management system manages
the supply and maintenance of information needed by the modeling processes
through the frame manager. A domain management process limits data available
to saidl frame responsive to a user selection. The system also includes a
demand and supply reconciliation process; a capacity planning process; a
vendor managed replenishment process; and a scenario management process.
19 Claims, 70 Drawing figures

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## Document Number 4

Entry 4 of 5                          File: USPT                          Aug 31, 1993

DOCUMENT-IDENTIFIER: US 5241467 A
TITLE: Space management system

DEPR:
As shown in FIG. 10, for a particular store a product price list 133 may have
entries, one for each product in the store. The entry has a field listing a
product code number (such as a Uniform Product Code) and the price that is to
be displayed for that product. Although not shown in FIG. 10, it is preferable
that numerous additional fields be provided, containing a plain- English
description of the product, a stock number used by store management, the date
and direction of the most recent price change for that product, and the desired
amount in inventory.

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| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC |

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## Document Number 5

Entry 5 of 5                    File: DWPI                    Apr 20, 1995

DERWENT-ACC-NO: 1997-106341
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TITLE: Setting method of sale price in vending machine - initialising
input=outpu t of CPU by applying constant voltage, displaying sales management
data and dispensing corresp. small change, and transferring to setting mode of
sales price


ABTX:
The method for setting the sales price easily with the push button includes
initialising the I/O of a CPU by applying the constant voltage. The sales
management data is displayed or the corresponding small change is dispensed if
the D of the inventory switch is on, and system transfers to the setting mode
of the sales price and displays the preset prices according to each inventory
switch stage to set the new price.

US-PAT-NO: 5450317
DOCUMENT-IDENTIFIER: US 5450317 A
TITLE: Method and system for optimized <u>logistics</u> planning

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image |

☐ 6. Document ID: US 5043908 A

Entry 6 of 6                          File: USPT                          Aug 27, 1991

US-PAT-NO: 5043908
DOCUMENT-IDENTIFIER: US 5043908 A
TITLE: Mail delivery system with arrival monitoring

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image |

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|---|---|
| logistic and l2 | 6 |

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**Search Results - Record(s) 1 through 4 of 4 returned.**

☐ 1.  Document ID: US 5918209 A

Entry 1 of 4                          File: USPT                          Jun 29, 1999

US-PAT-NO: 5918209
DOCUMENT-IDENTIFIER: US 5918209 A
TITLE: Method and system for determining marginal values for use in a <u>revenue</u>
management system

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image |

☐ 2.  Document ID: US 5615109 A

Entry 2 of 4                          File: USPT                          Mar 25, 1997

US-PAT-NO: 5615109
DOCUMENT-IDENTIFIER: US 5615109 A
TITLE: Method of and system for generating feasible, profit maximizing requisition
sets

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image |

☐ 3.  Document ID: US 5270921 A

Entry 3 of 4                          File: USPT                          Dec 14, 1993

US-PAT-NO: 5270921
DOCUMENT-IDENTIFIER: US 5270921 A
TITLE: Virtual fare methods for a computerized airline seat inventory control system

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image |

☐ 4.  Document ID: US 5255184 A

Entry 4 of 4                          File: USPT                          Oct 19, 1993

US-PAT-NO: 5255184
DOCUMENT-IDENTIFIER: US 5255184 A
TITLE: Airline seat inventory control method and apparatus for computerized airline
reservation systems

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image |

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| Terms | Documents |
|---|---|
| inventory with management with system$ and price and revenue and yield | 4 |

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### Search Results -

| Terms | Documents |
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| access$ and l6 | 3 |

**Database:** US Patents Full-Text Database ▾

Refine Search:    `access$ and 16` ▲▼

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| USPT | generat$ and l5 | 6 | L6 |
| USPT | generat$ and l4 | 6 | L5 |
| USPT | yield and l3 | 7 | L4 |
| USPT | l1 and l2 | 18 | L3 |
| USPT | price and forecasting | 161 | L2 |
| USPT | (inventory with management) or (inventory with management with system) | 847 | L1 |

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## Search Results - Record(s) 1 through 6 of 6 returned.

☐ 1. Document ID: US 5953707 A

Entry 1 of 6                          File: USPT                          Sep 14, 1999

US-PAT-NO: 5953707
DOCUMENT-IDENTIFIER: US 5953707 A
TITLE: Decision support system for the management of an agile supply chain

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image |

☐ 2. Document ID: US 5950190 A

Entry 2 of 6                          File: USPT                          Sep 7, 1999

US-PAT-NO: 5950190
DOCUMENT-IDENTIFIER: US 5950190 A
TITLE: Dynamic, self-modifying graphical user interface for relational database
applications

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image |

☐ 3. Document ID: US 5852824 A

Entry 3 of 6                          File: USPT                          Dec 22, 1998

US-PAT-NO: 5852824
DOCUMENT-IDENTIFIER: US 5852824 A
TITLE: Apparatus and method for processing year-date data in computer systems

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image |

☐ 4. Document ID: US 5726884 A

Entry 4 of 6                          File: USPT                          Mar 10, 1998

US-PAT-NO: 5726884
DOCUMENT-IDENTIFIER: US 5726884 A
TITLE: Integrated hazardous substance tracking and compliance

| Full | Title | Citation | Front | Review | Classification | Date | Reference | Claims | KWIC | Image |

☐ 5. Document ID: US 5450317 A

Entry 5 of 6                          File: USPT                          Sep 12, 1995